

4.8 AIR QUALITY

This section includes discussion of the potential effects of the emissions of the proposed project on air quality, the conformity analysis required under the *Clean Air Act* (CAA), and the potential particulate matter contributions to the United States that could result from construction of Mexico's connecting portion of the transmission line to be built in Mexico. The methodology for determining impacts is presented, along with a description of the construction and operation impacts for each alternative.

4.8.1 Emissions

Methodology

The air quality impacts discussion focuses on the construction phase of the project as the primary activity with the potential to impact air quality. This evaluation includes potential air emissions that could occur during construction of each alternative from fugitive dust (dust which escapes from a construction site) and equipment exhaust. Potential air impacts are evaluated for both project construction in the U.S. and for impacts in the U.S. that could be caused by air emissions transported to the U.S. from construction of Mexico's connecting portion of the transmission line to be built in Mexico. The projected construction progression, local climate and soil conditions, and project area land use are considered in assessing the significance of air quality impacts associated with the proposed project. Mitigation measures to avoid potential nuisance dust conditions and minimize construction equipment impacts to nearby residents are also described.

4.8.1.1 Western Corridor

The potential for effects on air quality associated with the Western Corridor would occur primarily during the construction phase. Fugitive dust emissions would result from construction along the transmission line right-of-way (ROW) at the South and Gateway Substations and staging areas, and at other construction areas as described in Section 2.2.3, Transmission Line Construction. The major sources of dust emissions would be construction equipment traffic, land clearing, drilling, excavation, and earth moving. Tucson Electric Power Company (TEP) anticipates that some explosives blasting would be required depending on geological conditions. Dust emissions would vary substantially from day to day, depending on the level of activity, the specific operation, and the prevailing meteorological conditions. The use of construction equipment would also result in the emission of air pollutants associated with diesel combustion (NO_x [nitrogen oxides], CO [carbon monoxide], SO_x [sulfur oxides], PM₁₀ [particulate matter with an aerodynamic diameter less than or equal to 10 microns] and reactive organic gases [ROG] from the fuel). All construction vehicle movements would be limited to the ROW or to pre-designated staging areas or public roads. Roads and active areas would have watering requirements appropriate for dust control in arid regions. An Activity Permit would be obtained from the Pima County Department of Environmental Quality for construction activities. The Arizona Administrative Code (AAC) contains dust control requirements for activities in Santa Cruz County, although no "dust control permit" would be required for activities in Santa Cruz County (Yockey 2001). Given the limited emissions of the project, it would not be subject to New Source Review (NSR) permitting under the CAA.

The Western Corridor crosses primarily undeveloped land. A limited number of residents in the vicinity of the ROW may be affected by a temporary adverse impact on their local air quality during construction. The average duration a construction site would be active adjacent to any one residence or business is 2 to 3 months. Construction is estimated to be completed in 10 months; however, due to potential restrictions on construction during fauna breeding and nesting seasons, construction could be spread over 12 to 18 months. No air quality impact associated with construction at any Class I Areas, or impacts to overall climate, would be expected from the proposed project. Construction generated dust would settle out of the

air within a distance of several miles from the project, thus avoiding visibility impacts at the Saguaro National Monument East Class I area, 18 mi (29 km) north of TEP's South Substation in Sahuarita. Given that the construction would be temporary and the adjacent land is primarily undeveloped, no significant impacts are expected to occur from construction.

No significant air impacts are expected from ongoing operation and maintenance of the Western Corridor. An occasional maintenance vehicle would be required to perform maintenance activities. Where maintenance access roads are not required, restoration of the ROW to natural vegetation would mitigate any fugitive dust emissions. The potential would exist for trace amounts of ozone production resulting from corona effects, the electrical breakdown of air into charged particles around the conductors, as explained in Section 3.10.2, Corona Effects. During damp or rainy weather (the peak conditions for corona effects), the ozone produced from similar transmission lines is less than 1 part per billion (ppb) (DOE 2001a). Background ozone measurements under the direction of the Arizona Department of Environmental Quality (ADEQ) in similar rural areas show 8-hour average ozone levels in the range of 70 to 80 ppb, considerably higher than levels generated by corona effects (Yockey 2001). Thus, no significant effects to air quality would be associated with the operation along the Western Corridor. Corona would be mitigated by using proper line design and by incorporating line hardware shielding.

4.8.1.2 *Central Corridor*

The potential for impacts to air quality associated with the construction and operation of the Central Corridor would be very similar to those for the Western Corridor. An increased number of residents may be temporarily affected by fugitive dust during construction of the Central Corridor. Given the temporary nature of construction and the limited impacts during operation, no significant effects to air quality would be associated with the Central Corridor, and it would not be subject to NSR permitting under the CAA.

4.8.1.3 *Crossover Corridor*

The potential for impacts to air quality associated with the construction and operation of the Crossover Corridor would be very similar to those for the Western Corridor. Given the temporary nature of construction and the limited impacts during operation, no significant effects to air quality would be associated with the Crossover Corridor, and it would not be subject to NSR permitting under the CAA.

4.8.1.4 *No Action Alternative*

Under the No Action Alternative, TEP would not build the proposed transmission line and the associated facilities as proposed in this Environmental Impact Statement (EIS). Current air quality trends would be expected to continue, as described in Section 3.8, Air Quality.

4.8.2 *CAA Conformity Requirements*

Section 176(c) of the CAA requires Federal agencies to ensure that their actions conform to applicable implementation plans (in most cases, the State Implementation Plan [SIP]) for achieving and maintaining the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. The State of Arizona General Conformity regulations (R18-2-1438) contain procedures and criteria for determining whether a proposed Federal action would conform to the SIP required by the CAA. (Arizona's General Conformity regulations are identical to, and reference, 40 CFR Part 93, Subpart B.) The regulations apply to a proposed Federal action that would cause emissions of criteria air pollutants above certain levels for the emitted pollutants, in non-attainment or maintenance areas (areas redesignated as attainment within the last 10 years). DOE's guidance document, *CAA General Conformity Requirements and the NEPA Process*

(DOE 2000), outlines the specific steps for addressing CAA conformity requirements in *National Environmental Policy Act* (NEPA) documents such as this EIS

For the proposed Sahuarita-Nogales Transmission Line project, the potential actions of Federal agencies included in this EIS (see Section 1.2.2) are as follows:

- U.S. Department of Energy (DOE) – the granting of a Presidential Permit
- U.S. Department of Agriculture Forest Service (USFS) – the granting of a special use permit
- Bureau of Land Management (BLM) – the approval of TEP's application to cross Federal lands managed by BLM

There are two phases to addressing CAA conformity requirements. In the first phase, the conformity *review* process, the Federal agency evaluates whether the conformity regulations would apply to an action (which, in turn, determines if the second phase of analysis is required). The second phase of analysis is the conformity *determination* process, in which the Federal agency demonstrates (often through extensive analyses) how an action would conform to the applicable implementation plan. For the proposed project, DOE, as the lead Federal agency, has conducted a conformity review for each analyzed alternative (the Western, Central, and Crossover Corridors), and has determined that a conformity determination would not be required for implementation of any of these alternatives. To the extent that the final alternative selected differs significantly from the assumptions utilized in the conformity review, the conformity review may need to be revisited before construction of the alternative.

There are two areas for which a conformity review is required, as shown in Figure 3.8–2: (1) the Nogales area, designated as being in moderate non-attainment of the NAAQS for PM₁₀, and (2) a CO maintenance area located near Tucson. The PM₁₀ non-attainment area encompasses Township 23 South, Ranges 13 to 14 East, and Township 24 South, Ranges 13 to 14 East, and includes portions of the proposed transmission line, project access, and the Gateway Substation. The CO maintenance area includes Township 16 South, Ranges 12 to 16 East, and runs adjacent to the north of a segment of the proposed transmission line and the South Substation. As stated in Section 4.8.1, both PM₁₀ (a component of fugitive dust) and CO would be emitted under each alternative. Thus, PM₁₀ and CO are identified as the pollutants of concern for the conformity review.

For the conformity review of each alternative, the total emissions were estimated for each pollutant of concern within the non-attainment or maintenance area for that pollutant. Because the project emissions during operation would be limited to those from occasional maintenance vehicles or equipment, the maximum year of project emissions calculated for the conformity review are those that would occur during a full year of project construction. (Construction is estimated to be completed in 10 months; however, due to potential restrictions on construction during fauna breeding and nesting seasons, construction could be spread over 12 to 18 months). To be conservative in terms of estimating the maximum emissions that could possibly occur, a one-year period for project construction was assumed, with scheduled 6-day work-weeks and with no allowance for work-days lost to bad weather, time off, or holidays. The emissions included within the conformity review are as follows: (1) PM₁₀ fugitive dust emission from construction and use of project access (including access road grading), staging areas, and tower and substation areas, (2) PM₁₀ and CO vehicle emissions from construction access vehicles and heavy construction equipment, (3) PM₁₀ and CO emissions from explosives blasting for tower and access construction, (4) emissions from the personal vehicles of construction workers traveling to and from the project staging sites, and (5) emissions from any increase in recreational use (for example, by off-highway vehicles) of the project area as a result of the proposed project.

In accordance with 40 CFR 93.153 (b), the total emissions estimates of each alternative were compared to the applicable threshold emissions rates for the pollutants of concern, as listed in Table 4.8–1. For both PM₁₀ and CO, the applicable threshold emission rate is 100 tons per year (tpy) (91 metric tons, or tonnes, per year [mtpy]). If the total emissions estimates are equal to or greater than the threshold emission rates for any pollutant of concern, a conformity determination would be required.

In addition, according to 40 CFR 93.153 (i) and (j), the total emissions estimates of each alternative are compared to the non-attainment and maintenance area's total emissions (that is, the listing of air pollutant emissions in the U.S. Environmental Protection Agency [EPA]-approved SIP) for the pollutants of concern. If the total emissions estimates are equal to or greater than 10 percent of the emissions inventory for a pollutant of concern, the proposed project would be considered a "regionally significant action" and a conformity determination would be required.

For the Nogales PM₁₀ non-attainment area, the SIP that ADEQ submitted to EPA in 1993 did not contain air pollutant emissions estimates, and thus EPA has not taken action to approve this portion of the SIP. Therefore, there is no PM₁₀ emissions inventory available for the Nogales PM₁₀ non-attainment area (ADEQ 2003a) that would allow a regionally significant level to be formally derived.

For the Tucson CO maintenance area, the EPA-approved SIP includes a Limited Maintenance Plan that does not establish an emissions inventory for CO. The Limited Maintenance Plan was developed with the support of the Pima Association of Governments, that estimated the mobile source emissions of CO (that is, from personal and commercial vehicles), constituting a majority of the CO emissions in the maintenance area. The estimated CO mobile source emissions for the maintenance area for 2003 are 325.1 tons per day, or 118,661 tpy (107,647 mtpy) (EPA 2000a). Therefore, 10 percent of 118,661 tpy (107,647 mtpy), that is, 11,866 tpy (10,765 mtpy), may be regarded as the emissions level above which the proposed project may be considered a regionally significant action. This regionally significant level for the Tucson maintenance area CO emissions is listed in Table 4.8–2.

Table 4.8–1. Regulatory Threshold Emission Rates for PM₁₀ and CO.

Criteria Pollutant and Air Quality Classification	Threshold Emission Rates (tons per year)
PM ₁₀ Moderate Non-attainment Area	100
CO Maintenance Area	100

Source: 40 CFR 93.153[b].

Table 4.8–2. Regionally Significant Action Level of PM₁₀ and CO.

Criteria Pollutant	Emission Rates (tons per year)
PM ₁₀	(no EPA-approved SIP)
CO	11,866

EPA = U.S. Environmental Protection Agency; SIP = State Implementation Plan

Source: EPA 2000a, EPA 2003b

The following background assumptions were made for estimating the fugitive dust emissions, equipment and vehicle emissions, and explosives blasting emissions for the Western, Central, and Crossover Corridors. Where precise information is not known conservative assumptions (potential overestimates) are used.

- There would be an estimated 18.8 mi (30.3 km) of unpaved project access roads for the Western Corridor, and 11.6 mi (18.7 km) for the Central and Crossover Corridors, within the Nogales non-attainment area. Access roads would be 12 ft (3.6 m) wide.
- There would be 57 support structures in the Western Corridor within the Nogales PM₁₀ non-attainment area, and 65 support structures in the Central and Crossover Corridors within the Nogales PM₁₀ non-attainment area.
- Each structure site would require a 100 by 200 ft (30 by 60 m) assembly area, which in some cases would overlap with the tower construction areas described in the following bullet item.
- Ten percent of the structures would be lattice towers (requiring 80,000 ft² [7,400 m²] per tower for construction), and the remaining 90 percent would be monopoles (requiring 31,415 ft² [2,920 m²] per tower for construction). Given the overlap of these tower construction areas with some of the tower assembly areas (in the previous bullet item), the net tower construction areas are reduced by 25 percent each for use in the emissions calculations.
- There would be a total of two tensioning/pulling sites (each 150 by 250 ft [46 by 76 m]) under active construction or use at any one time within the Nogales non-attainment area for any of the three proposed corridors.
- Construction along the Western, or Central, or Crossover Corridors would last one full year and would proceed at a steady rate along the entire length of the transmission line that is selected. There would be two construction crews within the Nogales PM₁₀ non-attainment area, and one construction crew within the Tucson CO maintenance area, that would be working a maximum of 6 days a week throughout a year, or 313 days per year. Down time from bad weather, holidays or time off is conservatively assumed to be zero. Thirteen percent of the segment of the Western Corridor within the Nogales PM₁₀ non-attainment area would be under construction at any one time, and 17 percent of that segment of the Central and Crossover Corridors that lies within the Nogales PM₁₀ non-attainment area would be under construction at any one time.
- Construction at the Gateway Substation would last for 7 months of 6 day work-weeks.
- Of the 18 acres (7.3 ha) of the TEP portion of the Gateway Substation, 10 acres (4 ha) would be fenced for construction, and 50 percent (that is, 5 acres [2 ha]) would be under construction at any one time during the 7 month construction period.
- An additional 3 acres (1.2 ha) at the staging area adjacent to the Gateway Substation would be engaged in construction activities for 3 months of 6 day work-weeks.
- Each construction crew would utilize the following equipment continuously for 8 hours each day: one planer or bulldozer, one scraper, one wheeled loader, one off-highway truck, one loader, one excavator, one concrete paver, one crane, and one water spray truck (see Figure 2.2–1 for representative photographs of the proposed construction equipment).
- All emissions estimates and assumptions, unless otherwise stated, are based on EPA's Compilation of Air Pollutant Emission Factors (AP-42, EPA 1995). To calculate the fugitive dust emissions rate, the daily emissions rate of 80 pounds of total suspended particulate matter (TSP) per acre of active construction per day (90 kg per ha per day) was multiplied by the percentage of PM₁₀ in TSP, which varies with soil type (Wild 1993). The proposed project would cross a range of soil types, as shown in

Figure 3.6–5, from sandy loams (10 to 30 percent PM_{10}) to clay loams (30 to 50 percent PM_{10}). The highest possible percentage of PM_{10} was conservatively assumed to be the 50 percent maximum.

- TEP would employ dust control measures on unpaved roads and in work areas. A control efficiency of 50 percent was assumed for typical dust control measures, such as watering roads and work areas, in an arid climate. This conservative estimate is based on EPA dust control efficiency assumptions for similar climates, ranging from 54 to 75 percent dust control (EPA 2002).
- In addition to the construction crews, there would be two 0.75-ton (0.68-metric ton) trucks that would each travel approximately 30 mi (48 km) per day on unpaved roads within the PM_{10} non-attainment area for coordination and completion of construction.
- The 80-acre (32-ha) construction lay down yard would be near the Arivaca Road and I-19 interchange, approximately 20 mi (32 km) outside of both the Nogales PM_{10} non-attainment area and the Tucson CO maintenance area.

The emissions estimates for the pollutants of concern, and the results of the comparisons of the emissions to the threshold emissions rates and the area's emissions inventory, are presented in the following sections.

4.8.2.1 *Western Corridor*

The length of the Western Corridor within the Nogales PM_{10} moderate non-attainment area would be approximately 8.3 mi (13.4 km) and would include an estimated 57 support structures. Also within the Nogales PM_{10} moderate non-attainment area would be the Gateway Substation. TEP owns 18 acres (7.3 ha) at the Gateway Substation of which a subset of 10 acres (4 ha) would be fenced off for construction; of these 10 fenced acres a maximum of only 50 percent (that is, 5 acres [2 ha]) would be under construction at any one time. There would also be a 3-acre (1.2-ha) staging area adjacent to the Gateway Substation that would be used for 3 months. The South Substation and approximately 1 mi (1.6 km) of the project corridor common to all three alternatives are just inside the Tucson CO maintenance area.

Based on the previously stated assumptions, the construction area under active construction at any one time for the transmission line in the Western Corridor within the PM_{10} non-attainment area would be approximately 12 acres (5 ha). This area would include support structure construction and access roads. This would result in maximum PM_{10} emissions of approximately 37.1 tpy (33.6 mtpy). Maximum PM_{10} emissions from 5 acres (2 ha) within the 10-acre (4-ha) fenced area of the Gateway Substation under continuous construction for seven months are estimated to be approximately 9.2 tpy (8.3 mtpy). Maximum PM_{10} emissions from the Gateway staging area are estimated to be approximately 2.3 tpy (2.1 mtpy). The maximum PM_{10} emissions from construction vehicle and equipment engines are estimated to be approximately 4.0 tpy (3.6 mtpy) within the Nogales PM_{10} non-attainment area.

TEP anticipates that some explosives blasting may be required during construction depending on geologic conditions. While CO is the pollutant produced in the greatest quantities from explosives detonation, some PM_{10} is also generated (EPA 1995). Explosives blasting would be limited to one or two blasts per day on average, as needed, in areas of tower or access construction. As explosives are most efficiently used by containing the blast energy in the ground to fracture the rock, the fugitive dust (and PM_{10}) generated at the ground surface from explosives blasting would be minimal. The charge would be limited to fracturing rock in a small area and discharge of material would be limited by proper charge design and use of blasting mats, which TEP would place over the excavation to further limit material and dust. The typical depth of explosives charges that would be utilized by TEP would be approximately 3 ft (0.9 m).

below ground level. The ground disturbance associated with explosives blasting operations would be captured in the fugitive dust calculations previously described for the PM₁₀ non-attainment area.

Maximum PM₁₀ emissions from two 0.75-ton (0.68-metric ton) trucks that would each travel approximately 30 mi (48 km) per day on unpaved roads within the PM₁₀ non-attainment area for coordination and completion of construction are estimated to be approximately 7.3 tpy (6.6 mtpy). Emissions from the personal vehicles of construction workers traveling to and from the project staging sites would be minimal given that access to the staging sites is primarily paved. The maximum number of construction workers would be approximately 50. Assuming workers would travel 0.5 mi (0.8 km) each way on unpaved roads to reach one of the three staging sites, there would be 17 vehicle miles (27 vehicle km) traveled each day at a particular staging site. Given an AP-42 estimate of 1.74 lbs PM₁₀ per vehicle mile (0.79 kg per vehicle kilometer) traveled, worker vehicle PM₁₀ emissions would be an estimated 2.3 tpy (2.1 mtpy) within the Nogales PM₁₀ non-attainment area. Any increase in indirect emissions associated with increased recreational use of the project area would be minimal given the existing opportunities for recreational vehicle use in the project area (see Section 4.1.2).

Thus, the total PM₁₀ emissions would be approximately 62 tpy (56 mtpy) within the Nogales PM₁₀ non-attainment area. This calculated maximum yearly PM₁₀ emissions rate would be below the emissions threshold rate of 100 tpy (91 mtpy). Therefore, a conformity determination for the proposed project within the Nogales PM₁₀ non-attainment area would not be required. Although conservative assumptions were used for estimating PM₁₀ emissions in this conformity review, there is some uncertainty in the estimated annual emissions because final project-specific input data were not available at the time of this analysis. Therefore, upon selection of an alternative to be implemented and preparation of final construction plans, the assumptions used in this review would be re-examined, and, if necessary, project PM₁₀ emissions in the Nogales PM₁₀ non-attainment area would be recalculated to assure that emissions are below the 100 tpy (91 mtpy) threshold emission rate.

For the CO maintenance area, the direct emissions sources included in the calculations are from equipment and vehicle emissions and explosives blasting. Assuming that one construction crew is active all year within or adjacent to the CO maintenance area, and based on AP-42 construction vehicle emission factors and the equipment and usage factors given in the assumptions, the CO emissions would be an estimated 11.5 tpy (10.4 mtpy).

CO is the pollutant produced in the greatest quantities from explosives detonation. For ammonium nitrate and fuel oil, the explosives commonly used for construction work, approximately 67 pounds of CO would be emitted for each ton of rock blasted (EPA 1995). Assuming that TEP performs 25 blasts of 10 tons (9.1 metric tons) of rock each, in the area within or adjacent to the CO maintenance area, the resulting CO emissions would be an estimated 8.4 tpy (7.6 mtpy).

Emissions from construction workers' personal vehicles reporting to one of the three project staging sites could also contribute CO to the Tucson maintenance area depending on where the workers live. Assuming that the construction workers reporting to the South Substation staging area would drive 15 mi (24 km) each way in the Tucson CO maintenance area, and given EPA's factor of 0.046 lbs CO per mi (0.013 kg per km), maximum annual emissions of CO would be an estimated 4.3 tpy (3.9 mtpy) (EPA 2000b). Thus, the maximum year of emissions could result in an estimated 24.2 tpy (21.9 mtpy) of CO emissions immediately adjacent to or within the Tucson CO maintenance area. This emissions rate would be below the emissions threshold rate of 100 tpy (91 mtpy) that would trigger a conformity determination. This emissions rate would also be below the regionally significant source emissions threshold rate of 11,866 tpy. Therefore, a conformity determination for the proposed project within the Tucson CO maintenance area would not be required.

4.8.2.2 *Central and Crossover Corridors*

The Central and Crossover Corridors are identical within the Nogales PM₁₀ non-attainment area, and are addressed by a single conformity review that follows for the PM₁₀ non-attainment area. The Central and Crossover Corridors are the same as the Western Corridor with respect to the Tucson CO maintenance area; therefore, the assumptions, emissions estimates, and conclusion described in Section 4.8.2.1 that a conformity determination would not be required for the proposed project adjacent to the CO maintenance area also apply for the Central and Crossover Corridors.

The Central and Crossover Corridors within the Nogales PM₁₀ moderate non-attainment area would be approximately 10.5 mi (16.9 km) long and would include 65 support structures. TEP owns 18 acres (7.3 ha) at the Gateway Substation of which a subset of 10 acres (4 ha) would be fenced off for construction, and, of these 10 fenced acres, a maximum of only 50 percent (that is, 5 acres [2 ha]) would be under construction at any one time. There would also be a 3-acre (1.2-ha) staging area adjacent to the Gateway Substation that would be used for 3 months.

Based on the previously stated assumptions, the construction area under active construction at any one time for the transmission line in the Central Crossover Corridor within the PM₁₀ non-attainment area would be approximately 15 acres (6 ha). This area would include support structure construction and access roads. This would result in maximum emissions of approximately 47.6 tpy (43.2 mtpy). Maximum PM₁₀ emissions from five acres under continuous construction for seven months within the 10-acre (4-ha) fenced area of the Gateway Substation are estimated to be approximately 9.2 tpy (8.3 mtpy). Maximum PM₁₀ emissions from the Gateway staging area are estimated to be approximately 2.3 tpy (2.1 mtpy). The maximum PM₁₀ emissions from construction vehicle and equipment engines are estimated to be approximately 4.0 tpy (3.6 mtpy) within the Nogales PM₁₀ non-attainment area.

TEP anticipates that some explosives blasting may be required during construction depending on geologic conditions. While CO is the pollutant produced in the greatest quantities from explosives detonation, some PM₁₀ is also generated (EPA 1995). Explosives blasting would be limited to one or two blasts per day on average, as needed, in areas of tower or access construction. As explosives are most efficiently used by containing the blast energy in the ground to fracture the rock, the fugitive dust (and PM₁₀) generated at the ground surface from explosives blasting would be minimal. The charge is limited to fracturing rocks in a localized area and discharge of material would be limited by proper charge design and use of blasting mats, which TEP would place over the excavation to further limit material and dust. The typical depth of explosives charges that would be utilized by TEP would be approximately 3 ft (0.9 m) below ground level. The ground disturbance associated with explosives blasting operations would be captured in the fugitive dust calculations previously described for the PM₁₀ non-attainment area.

Maximum PM₁₀ emissions from two 0.75-ton (0.68-metric ton) trucks that would each travel approximately 30 mi (48 km) per day on unpaved roads within the PM₁₀ non-attainment area for coordination and completion of construction are estimated to be approximately 7.3 tpy (6.6 mtpy). Emissions from the personal vehicles of construction workers traveling to and from the project staging sites would be minimal given that access to the staging sites is primarily paved. The maximum number of construction workers would be approximately 50. Assuming workers would travel 0.5 mi (0.8 km) each way on unpaved roads to reach one of the three staging sites, there would be 17 vehicle miles (27 vehicle km) traveled each day at a particular staging site. Given an AP-42 estimate of 1.74 lbs PM₁₀ per vehicle mile (0.79 kg per vehicle km) traveled, worker vehicle PM₁₀ emissions would be an estimated 2.3 tpy (2.1 mtpy) within the Nogales PM₁₀ non-attainment area. Any increase in indirect emissions associated with increased recreational use of the project area would be minimal given the existing opportunities for recreational vehicle use in the project area (see Section 4.1.2).

Thus, the total PM₁₀ emissions would be approximately 73 tpy (66 mtpy) within the Nogales PM₁₀ non-attainment area. This calculated maximum yearly PM₁₀ emissions rate would be below the emissions threshold rate of 100 tpy (91 mtpy). Therefore, a conformity determination for the proposed project within the Nogales PM₁₀ non-attainment area would not be required. Although conservative assumptions were used for estimating PM₁₀ emissions in this conformity review, there is some uncertainty in the estimated annual emissions because final project-specific input data were not available at the time of this analysis. Therefore, upon selection of an alternative to be implemented and preparation of final construction plans, the assumptions used in this review would be re-examined, and, if necessary, project PM₁₀ emissions in the Nogales PM₁₀ non-attainment area would be recalculated to assure that emissions are below the 100 tpy (91 mtpy) threshold emission rate.

4.8.3 PM₁₀ Contributions from Transmission Line Construction in Mexico

Emissions that could be generated in Mexico from the construction of Mexico's connecting portion of the transmission line were assumed to occur simultaneously with TEP's construction of the proposed project in the U.S., as a scenario to predict maximum annual emissions. Given the lack of available information on project design and construction in Mexico (as TEP would not construct this portion of the project), the conservative assumptions stated previously for project access, support structure type and span length, and construction progression and equipment in the U.S. were also applied for construction on the Mexico portion of the project. Project-generated emissions for Mexico could be transported to the U.S. by tropospheric dispersion. As shown in Figure 3.8-1, surface winds are predominately southeasterly, and blow from Mexico in the south to the U.S. in the north (including to the north, north-northeast, and north-northwest) approximately 25 percent of the time (NOAA 2003). Emissions from the project connecting to TEP's proposed border crossing into Nogales, Mexico, were considered for the first 10 mi (16 km) of Mexico's project south of the border, mirroring the approximate 10 mi (16 km) of TEP's proposed project within the Nogales, Arizona PM₁₀ non-attainment area. As estimated for the approximate 10 mi (16 km) of TEP's proposed project within the Nogales, Arizona PM₁₀ non-attainment area, approximately 15 acres (6 ha) in Mexico near the U.S. border may be under active construction at any one time and approximately 61 tpy (56 mtpy) of PM₁₀ emissions may result. If 25 percent of these emissions were transported to the Nogales, Arizona, PM₁₀ non-attainment area in the U.S., this would correspond to a contribution of approximately 15 tpy (14 mtpy) of PM₁₀ emissions from Mexico.